

KRNOELEIN ON THE PATHOLOGY AND OPERATIVE TREATMENT  
OF DERMOID CYSTS OF THE ORBITS.

Prof. R. N. Krönlein, of Zurich, in the first part of the fourth volume, 1888, of Bruns' "Beitrage für klinische Chirurgie," discusses at length dermoid cysts of the orbits.

From the rarity of such tumors, and the fact that the few cases are further divided between surgeons and ophthalmologists, no full account of them has been given, though Berlin (1880), Heineke (1882) and Trendelenburg (1886) have some mention of them. Their complete removal is difficult but important for the sake of the eye and to avoid remaining fistulæ.

I. Hour-Glass Dermoid of the Orbita.—By this is meant a dermoid cyst with one portion deep in the orbit (*saccus orbitalis*), the other in the temporal fossa (*saccus temporalis*), connected through a defect in the external orbital wall. This formation of the cyst is similar to and produces the same characteristic type of trouble as that of the so-called hour-glass hygroma of the *volva manus*, or that of the bilocular hydrocele, or Krönlein's inguino-properitoneal hernia.

As a paradigm, he gives the case of a farmer, æt. 21 years, who sought relief from a swelling in the left temporal region. This was said to have developed spontaneously, without pain, some four weeks previously. Still it turned out that a certain irregularity of the eyes had been noticed since childhood.

Protrusion of bulbus down and inward; prominence of outer upper portion of orbit, and still more of the temple behind external orbital border and zygomatic process. Tension of the temporal skin drew the eyebrow somewhat up and outward, in which direction only were the eye-movements impaired. Vision, left= $\frac{1}{3}$ , without narrowing of field. Diplopia only from use of prisms. Papilla and fundus normal, except veins on left somewhat fuller. (Ophthalmic data from Prof. O. Haab.)

Most striking was the result of palpation. Pressure with the finger

on the temporal swelling caused the upper orbital region to become noticeably prominent and the eye to protrude more than before. A finger at the same time on the upper lid felt a sensation like deep fluctuation. The reverse experiment was just as definite. No pulsation nor vascular sounds. Head otherwise normal, even naso-pharynx. No cerebral or trigeminal symptoms, impediment to mastication, nor break in the external orbital wall.

The differential diagnosis, only partially decided in advance, lay between (1) tumor retromaxillaris of von Langenbeck, (2) pulsating exophthalmos, (3) spheno-maxillary cephalocele (Heineke), (4) dermoid cyst, cavernous angioma, lymph angioma, lipoma, (5) sarcoma. However, intervention was demanded (eye, brain, etc., in danger from delay). He decided to extirpate from the temporal side after opening the field freely—half-moon incision through skin fascia and muscle, from zygomatic process of frontal back along zygomatic arch to about 3 ctm. before the ear. Tumor adherent to periosteum; behind the spheno-frontal process it extends through a circular opening, 2 ctm. in diameter in the outer wall of the orbit. The borders of the opening are smooth and covered with periosteum. To reach the orbital portion of the tumor it was necessary to chisel off 5 ctm. of the over-projecting spheno palatal process of the zygomatic bone. Suture of muscle, then of skin. Patient discharged in three weeks. No diplopia, no protrusion of eye, no difference in retinal vessels, vision improved.

Dermoid tumors deep in the side of the orbita, or again in the temple, are known, but this is believed to be the first reported case where two were in communication.

The bone defect, where a suture normally occurs, he indicates must have been congenital; hence he extends Trendelenburg's theory of the origin of orbital dermoids from the fetal eye-nose furrow, to include the temporal ones also.

II. The Osteoplastic Resection of the External Orbital Wall Provisional to the Extirpation of Deep-Lying Lateral Orbital Tumors, Especially Orbital Dermoids.—The removal of such cysts has proved very difficult and uncertain when they are deep, retrobulbar and thin-walled. The whole operation cannot be controlled by the eye, and

when fragments are left, persistent fistulæ are apt to form and in time damage the visual organ. Hence Krönlein devised the following operation for such a case:

1. Skin incision. This begins in the temple, where the linea semicircularis of the frontal bone is clearly felt through the skin, about 1 cm. above supraorbital margin—and runs down in an anteriorly slightly convex curve along the external orbital border to the level of the upper zygomatic border, where it bends backward and ends at the middle of the zygomatic arch. This incision goes down along the external orbital edge through the periosteum. From this periosteal cut the entire periorbita is very easily lifted from the lateral orbital wall by the elevator. The tip of the elevator is then passed obliquely downward into the inferior orbital fissure to fix the point toward which the following bone-cuts converge.

2. Bone incisions. The osteoplastic resection extends to the entire outer orbital border (process zygomaticus oss. front. et processus frontalis oss. zygomatic) and that part of the outer orbital wall which lies between this border and the inferior orbital fissure (pars orbitalis oss. zygomatic and anterior part of the ala temporalis oss. sphenoid). Hence the piece of bone to be temporarily removed has the form of a wedge, the base of which is formed by the anterior orbital border (vide supra), and the tip of which ends in the anterior division of the inferior orbital fissure. The bone is best divided with a sharp chisel without further preparation, and especially without endangering the natural attachments of the temporal fascia and the fibres of the temporal muscle on its temporal side, since to these attachments, together with the skin, the nutrition of the separated piece of bone for a time falls. First, the zygomatic process of the frontal bone is chiselled straight through, somewhat above the easily visible and palpable sutura zygomatico-frontalis, and the bony division continued in a direct line obliquely through the lateral orbital wall toward the elevator placed in the inferior orbital fissure. Then follows the horizontal chiselling, through the frontal process of the zygomatic bone, close to its base, likewise continued into the fissure. Thereupon, the mobilized piece of bone with the

skin fascia muscle flap of the temporal region can be thrown back sufficiently to allow free entrance to the lateral part of the orbit. This operation is extremely simple and rapidly executed. After extirpation of the orbital tumor the combined flap is again brought into place and secured by sutures. Cure without disfigurement.

His illustrative case is a re-operation for an orbital dermoid that had left a fistula. Two plates and a wood-cut help to make the article clear.